CLAIMS

What is claimed is:

1. A method of increasing glutathione levels in mammalian cells comprising administering an oral bolus of encapsulated pharmaceutically stabilized glutathione in a rapidly dissolving formulation to a mammal on an empty stomach.

2. The method of claim 1 wherein the mammal is infected with an RNA virus.

3. The method according to claim 2 wherein the virus is a retrovirus.

4. The method according to claim 3 wherein the retrovirus is HIV.

5. The method according to claim 4 wherein the mammal is a human having a CD4+ cell count of greater than 500.

6. The method according to claim 4 wherein the mammal is a human having AIDS.

7. The method according to claim 2 wherein the virus is the rabies virus.

8. The method according to claim 1 wherein the mammal is infected with a herpes virus.

9. The method according to claim 8 wherein the herpes virus is a human herpes virus.

10. The method according to claim 1, wherein the mammal has diabetes.

11. The method according to claim 1 wherein the mammal has levels of blood glucose which are physiologically elevated.

12. The method according to claim 11 wherein enzymes in the mammalian cells which produce reduced glutathione are glycated.

13. The method according to claim 1, wherein the mammal has congestive heart failure.

14. The method according to claim 1, wherein the mammal has vasoconstriction resulting from poor utilization of nitric oxide and resulting increased peripheral vascular resistance.

15. The method according to claim 1 wherein the mammal is exposed to a toxic compound which promoted uncontrolled free radical oxidation.

16. The method according to claim 15, wherein the compound is an alcohol.

17. The method according to claim 16, wherein the alcohol is ethanol.

18. The method according to claim 15, wherein the compound is acetaminophen.

19. The method according to claim 1 wherein the mammal has hepatitis.

20. The method according to claim 19 wherein the hepatitis is an infectious hepatitis.

21. The method according to claim 1 wherein the encapsulated pharmaceutically stabilized glutathione in a rapidly dissolving formulation comprises about 500 mg of glutathione and about 250 mg of crystalline ascorbic acid in a hard gelatin capsule.

22. The method according to claim 1, wherein the glutathione is pharmaceutically stabilized with ascorbic acid.

23. The method according to claim 22, wherein the ascorbic acid is present in an amount of about 1:1 to 1:10 to glutathione by weight.

24. The method according to claim 1 wherein the glutathione is encapsulated with an antistatic agent.

25. The method according to claim 24, wherein the antistatic agent is crystalline ascorbic acid.

26. The method according to claim 1, wherein the mammal is a human having Alzheimer's disease.

27. The method according to claim 1, wherein the mammal is a human having Parkinson's disease.

28. The method according to claim 1, wherein the mammal has a catecholamine-related toxicity.

29. The method according to claim 1, wherein the mammal has malignant melanoma.

30. The method according to claim 1, wherein the mammal has atherosclerosis.

31. The method according to claim 1, wherein the mammal has macular degeneration.

32. The method according to claim 1, wherein the mammal has cataracts.

33. The method according to claim 1, wherein the mammal has glaucoma.

34. The method according to claim 1, wherein the mammal is a human having adult respiratory distress syndrome (ARDS).

35. The method according to claim 1, wherein the mammal has emphysema.

36. The method according to claim 1, wherein the mammal has fibrocystic disease of the lung.

37. The method according to claim 1, wherein the mammal has asbestosis.

38. The method according to claim 1, wherein the mammal is a human having Alzheimer's disease.

39. The method according to claim 1, wherein the glutathione prevents malignant transformation of mammalian cells.

40. The method according to claim 1, wherein the mammal is has metal ion toxicity.

41. The method according to claim 1, wherein the metal ion is selected from the group consisting of cadmium, lead, mercury, copper, iron, selenium, tellurium, actinides and transuranics.

42. The method according to claim 1, wherein the mammal is subjected to ionizing radiation in conjunction with said admionistration.

43. The method according to claim 42, wherein the radiation is at a level above background levels.

44. The method according to claim 1, wherein the mammal is subjected to a toxic atmospheric gas.

45. The method according to claim 44, wherein the toxic gas is selected from the group consisting of ozone, oxides of nitrogen, and oxides of sulfur.

46. The method according to claim 1, wherein the mammal has an inflammatory disease of the bowel.

47. The method according to claim 46, wherein the inflammatory disease is selected from the group consisting of regional enteritis, and ulcerative colitis (Crohn's disease).

48. The method according to claim 1, wherein the mammal is administered a cancer chemotherapeutic agent.

49. The method according to claim 48, wherein the cancer chemotherapeutic agent is selected from the group consisting of cis-platin, doxorubicin, and daunorubicin.

50. The method according to claim 1, wherein the mammal has suffered an acute injury.

51. The method according to claim 50, wherein the injury is selected from the group consisting of spinal cord injury, brain injury, ophthalmic, and peripheral neuropathy.

52. The method according to claim 1, wherein the mammal suffers from halogenated hydrocarbon toxicity.

53. A method of inactivating virus in an extracorporeal human body fluid, comprising adding reduced glutathione to the fluid in sufficient quantity to reduce viral proteins.

54. The method according to claim 53, wherein the human body fluid comprises a blood product.

55. A method of increasing glutathione levels in mammalian cells comprising orally administering stabilized glutathione to achieve an effective concentration in the duodenum of at least about 500 micromolar, with less than about 10 grams of food present per gram of glutathione in the duodenum.

56. A method of administering glutathione to a mammal, comprising maintaining substantially reduced L-glutathione and a reducing agent composition in a reduced condition in a pharmaceutical dosage form adapted to release at least a portion of the glutathione in the duodenum; and subsequently administering the pharmaceutical dosage form while the stomach is substantially empty, whereby absorption of the portion of glutathione released in the duodenum is greater than about 40%.

57. A method of increasing glutathione levels in the tissues of a human, comprising the steps of maintaining a pharmaceutical formulation of substantially reduced L-glutathione mixed with a reducing agent composition in a reduced condition and administering the pharmaceutical formulation in such manner to achieve a concentration of glutathione in the duodenum exceeding a concentration of glutathione in the cells lining the duodenum and as to promote conversion of less than about 10% of administered glutathione to ophthalmic acid in the stomach, duodenum and upper third of the ileum.

58. A pharmaceutical formulation comprising a dry gel matrix having therein glutathione or a derivative thereof, for administration trans-mucosal membrane.

59. The pharmaceutical formulation according to claim 58, wherein said glutathione is derivatized as nitroso-glutathione.